Meta-analysis of enteral nutrition versus total parenteral nutrition in patients with severe acute pancreatitis

Cao Y, Xu Y, Lu T, Gao F, Mo Z

CRD summary
This review concluded that enteral nutrition appeared to be safer than total parenteral nutrition in the nutritional support of patients with severe acute pancreatitis. The authors' conclusion is based on a small number of small trials of unclear quality, so it should be interpreted with some caution.

Authors' objectives
To compare the efficacy of enteral nutrition versus total parenteral nutrition in the nutritional support of patients with severe acute pancreatitis.

Searching
PubMed, EMBASE and the Cochrane Library were searched, with no language restrictions, from 1966 to 2008 for published studies. Search terms were reported. Reference lists of retrieved articles were screened.

Study selection
Randomised controlled trials (RCTs) that compared enteral nutrition with parenteral nutrition in adult patients (≥18 years) with severe acute pancreatitis were eligible for inclusion. Trials had to report on at least one of the following: infections, artificial nutrition related complications, organ failure, pancreatitis related complications, non-pancreatitis related complications, and mortality. Specific criteria to define severe acute pancreatitis had to be fulfilled. Patients with exacerbations of chronic pancreatitis and those who were pregnant were excluded.

In included trials, all patients were enrolled within 96 hours of pain onset. Total parenteral nutrition was delivered through a peripheral or central venous catheter. Enteral nutrition was delivered through a naso-jejunal tube that was placed endoscopically or radiographically. All patients included in the trials were followed-up. The mean age of included patients ranged from 51 to 71 years.

The authors did not state how many reviewers assessed studies for inclusion.

Assessment of study quality
Trials were assessed for methodological quality using the Jadad criteria which assigned trials a score out of 5 points based on randomisation, blinding and withdrawals. Trials that scored 3 or more were considered to be of high quality.

The authors did not state how many reviewers assessed quality.

Data extraction
Two reviewers independently extracted data on the number of patients, with and without each outcome, in each treatment group. These data were used to estimate odds ratios (ORs).

Methods of synthesis
Summary odds ratios, together with 95% confidence intervals (CIs), were estimated using Mantel-Haenszel fixed-effect models. Heterogeneity was assessed using the X² statistic. If heterogeneity was present, random-effects models were used to pool data; subgroup and sensitivity analyses were conducted.

Results of the review
Six RCTs (n=224 patients) were included in the review. All trials scored 3 on the Jadad scale. All trials fulfilled the items related to randomisation and reporting of withdrawals, but none of the trials were double blinded.
Compared with total parenteral nutrition, enteral nutrition was associated with significantly decreased infections (OR 0.24, 95% CI 0.12 to 0.46), pancreatitis related complications (OR 0.46, 95% CI 0.23 to 0.89), organ failure (0.33, 95% CI 0.17 to 0.67), multiple organ dysfunction syndrome (0.31, 95% CI 0.13 to 0.74) and mortality (OR 0.25, 95% CI 0.10 to 0.67).

There were no significant differences between groups for artificial nutrition related complications or non-pancreatitis related complications.

There was no evidence of statistical heterogeneity for any of the comparisons, except for non-pancreatitis related complications (p=0.008).

Authors' conclusions
Enteral nutrition appeared safer than total parenteral nutrition in the nutritional support of patients with severe acute pancreatitis.

CRD commentary
The review addressed a focused question supported by clearly defined inclusion criteria. The literature search was adequate for published studies and no language restrictions were applied, but specific attempts were not made to locate unpublished studies. Therefore, there was a possibility of publication bias, which was not considered in the review. Appropriate steps were taken to minimise bias and errors when extracting data, but it was unclear whether such steps were taken when selecting studies and assessing quality.

Trial quality was assessed using some appropriate criteria, but allocation concealment was not considered. Appropriate methods were used to pool trials; the results were clearly presented.

The authors’ conclusion was supported by the results, but is based on a small number of small trials, so it should be interpreted with some caution.

Implications of the review for practice and research
Practice: The authors stated that enteral nutrition may be safer than total parenteral nutrition in the nutritional support of patients with severe acute pancreatitis.

Research: The authors did not state any implications for research.

Funding
Not stated.

Bibliographic details

PubMedID
19136822

DOI
10.1159/000189382

Original Paper URL

Indexing Status
Subject indexing assigned by NLM
MeSH
Confidence Intervals; Enteral Nutrition; Humans; Infection /epidemiology; Multiple Organ Failure /epidemiology; Odds Ratio; Pancreatitis, Acute Necrotizing /complications /therapy; Parenteral Nutrition; Parenteral Nutrition, Total; Randomized Controlled Trials as Topic; Treatment Outcome

AccessionNumber
12009103376

Date bibliographic record published
02/09/2009

Date abstract record published
08/12/2010

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.